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EXAMINER	
CHANG, R	
ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 09/466,521	Applicant(s) GAMEL ET AL.	
	Examiner Rick K. Chang	Art Unit 3729	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 April 2001* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *30-37,44-69 and 72-75* is/are pending in the application.

4a) Of the above claim(s) *45,47,52,55,56,63,65,66 and 68* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *30-37, 44, 48-51, 53-54, 57-62, 64, 67,72, and 74-75* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15)☒ Notice of References Cited (PTO-892)
16)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
18)☐ Interview Summary (PTO-413) Paper No(s). _____ .
19)☐ Notice of Informal Patent Application (PTO-152)
20)☐ Other:

DETAILED ACTION

1. Receipt is acknowledged of an amendment filed on April 19, 2001. This amendment has been entered.

Claim Objections

1a. Claim 62, line 2, is objected to because of the following informalities: after "warning", recommend deleting "prompt". Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 53-54 and 57-60 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 53, line 2 and claim 54, lines 2-3 have ambiguous claim terminology which is unclear whether later recitations of originally recited terms ("a detected alignment" and "a predetermined fiducial alignment") are intended to refer to the originally recited terms. For example, "an alignment" (claim 54, line 2). Applicants are requested to review the claims to correct all problems of ambiguous claim terminology.

In claims 53-54 and 57-60, the inconsistency between the language in the preamble "apparatus" (line 1) and certain portions of the body of the claim such as "component" and "fiducial marker" renders the scope of the claim vague and indefinite because it is unclear if the intent is to claim either the subcombination of the "apparatus" alone or the combination of the "apparatus", "component" and "fiducial marker". The applicant is asked to please clarify what

subject matter the claim is intended to be drawn to, i.e., the subcombination of the "apparatus" alone or the combination of the "apparatus", "component" and "fiducial marker", where the language of the claim is to be amended to be consistent with this intent. The limitations "component" and "fiducial marker" are not being rejected by a prior art because the claims are drawn to the subcombination of the apparatus alone.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 30-32, 34-37, 44, 48-51, 61, 64, 67, and 74-75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Janisiewicz et al (US 5,040,291) in view of Hidese (US 5,342,460), and further in view of Kent (US 5,787,577).

Re claims 30, 44, 48, 53, and 61: Janisiewicz discloses a component transfer apparatus (Figs. 1-2) comprising a pick and place machine (26) including a controller (col. 3, line 9) connected to a movable pick head (col. 3, lines 7-10), the pick head (14) having access to a component feed source (6); and a component alignment detector comprising a receiver (col. 4, lines 25-26) located at a feed source (40). Janisiewicz, further, discloses having an alignment signal output (electric alignment signal from a well known vision system located at pick-up station 40) in order to compensate for discrepancies between a detected alignment with a predetermined alignment (col. 2, lines 37-41).

Janisiewicz fails to disclose that an apparatus transferring at least one component having leads; and a component feed source is connected to a controller and that the receiver is directed toward the feed source and connected to a controller, wherein the controller contains instructions which, when executed by the controller, cause the controller to compare a detected fiducial alignment with a predetermined fiducial alignment and provide a control scheme.

Hidese discloses transferring at least one component having leads (Fig. 5) and comparing a detected fiducial alignment or a detected alignment of the fiducial marker (four corners a-d of outer leads 3c) with a predetermined fiducial alignment (col. 4, lines 31-33) thereby minimizing product defects from misplaced components.

Kent discloses a component feed source (106) is connected to a controller (feed source 106 is connected to controller 204 via bus 208; see Fig. 2) and that the receiver (camera 201) is directed toward the feed source (each camera 201 is disposed in each of the nozzles 114 to look down toward feed source 106) and connected to a controller (Fig. 2 shows camera 201 is connected to controller 204 via bus 210), wherein the controller contains instructions (the control section 204 controls the part placement machine 102 to perform a comparison procedure) which, when executed by the controller, cause the controller (204) to compare between "nominal" and "actual" patterns of electronic components and provide a control scheme (Fig. 3) thereby increasing production for an automated assembly system.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Janisiewicz by transferring at least one component having leads and comparing a detected fiducial alignment or a detected alignment of the fiducial marker with a

predetermined fiducial alignment, as taught by Hidese, for the purpose of minimizing product defects from misplaced components.

Further, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Janisiewicz by connecting a component feed source to a controller and that the receiver is directed toward the feed source and the controller, wherein the controller contains instructions which, when executed by the controller, cause the controller to compare between "nominal" and "actual" patterns of electronic components and provide a control scheme, as taught by Kent, for the purpose of increasing production for an automated assembly system.

Note: a recitation of the intended use of the claimed invention ("for transferring a component having leads", "for a component having leads", and "for a component having leads and a fiducial marker thereon that is indicative of an alignment of the leads") must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Claim 31: Janisiewicz discloses a continuous serial track component feed source (24).

Claim 32: Janisiewicz discloses a plurality of trays (6) disposed along the continuous serial track (4).

Claim 34: Janisiewicz discloses a plurality of serial feed sources (24).

Claim 35: Janisiewicz fails to disclose a plurality of receivers and each of the plurality of serial feed sources has at least one corresponding receiver directed toward the feed source.

Kent discloses a plurality of receivers (each camera 201 is disposed in each of the nozzles 114 to look down toward feed source 106) and each of the plurality of serial feed sources (106) has at least one corresponding receiver directed toward the feed source (rotary pick head 110 directs each camera to corresponding feed source) thereby independently judging the alignment of each component using a plurality of cameras to increase production for an automated assembly system and utilizing a plurality of known cameras to reduce research and development.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Janisiewicz by providing a plurality of receivers and each of the plurality of serial feed sources has at least one corresponding receiver directed toward the feed source for the purpose of independently judging the alignment of each component using a plurality of cameras to increase production for an automated assembly system and utilizing a plurality of known cameras to reduce research and development. as taught by Kent

Claim 36: Janisiewicz discloses the detector (col. 4, lines 25-26) and the pick head (26) are distinct members (the detector is disposed at 40, not at pick head 26).

Claim 37: Janisiewicz discloses the detector (col. 4, lines 25-26) is stationary with respect to the pick head (26 is movable between trays 6 and 28).

Claim 49: Janisiewicz discloses a continuous track (4) of trays (24).

Claim 50: Janisiewicz discloses a plurality of serial feed tracks (4).

Claim 51: Janisiewicz discloses a continuous tape reel (3).

Claims 64 and 67: Janisiewicz is relied upon in rejection to claims 30, 44, 48, 61, as shown above. Janisiewicz discloses a component mounting station (28) having access to the movable pick head (26). However, Janisiewicz fails to disclose picking a component from the component feed source by the movable pick head and placing the component on a substrate caused by the controller.

Kent discloses picking a component from the component feed source by the movable pick head (col. 2, lines 58-61) and placing the component on a substrate (326 shown in Fig. 3) caused by the controller thereby reducing rejection rates of electronic parts due to slight mechanical differences among functionally equivalent electronic parts to increase production for an automated assembly system (col. 1, lines 20-31).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Janisiewicz by disclose picking a component from the component feed source by the movable pick head and placing the component on a substrate caused by the controller for the purpose of reducing rejection rates of electronic parts due to slight mechanical differences among functionally equivalent electronic parts to increase production for an automated assembly system as taught by Kent.

Claims 74-75: Janisiewicz discloses component conveying means (4) and a vision system located at pick-up station 40 is equivalent to applicants' detecting means.

Janisiewicz fails to disclose means for comparing the detected alignment with a predetermined alignment and signal means indicative of whether the detected alignment corresponds to the predetermined alignment.

Kent discloses means (feed source 106 is connected to controller 204 via bus 208; see Fig. 2) for comparing the detected alignment with a predetermined alignment (the control section 204 controls the part placement machine 102 to perform the procedure illustrated in Fig. 3) and signal means indicative of whether the detected alignment corresponds to the predetermined alignment (at block 312 of Fig. 3) thereby reducing rejection rates of electronic parts due to slight mechanical differences among functionally equivalent electronic parts to increase production for an automated assembly system (col. 1, lines 20-31).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Janisiewicz by providing means for comparing the detected alignment with a predetermined alignment and signal means indicative of whether the detected alignment corresponds to the predetermined alignment for the purpose of reducing rejection rates of electronic parts due to slight mechanical differences among functionally equivalent electronic parts to increase production for an automated assembly system as taught by Kent.

6. Claims 33 and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Janisiewicz et al (US 5,040,291) and Kent (US 5,787,577) as applied to claims 30-32, 34-37, 44, 48-51, 61, 64, 67, and 74-75 above, and further in view of Fukai et al (US 4,914,809).

Claim 33: Janisiewicz/Kent discloses a plurality of component trays (6).

Janisiewicz/Kent fail to disclose that the plurality of component trays, disclosed above, contains a recess having an asymmetric shape.

Fukai discloses a recess (13a-13c) having an asymmetric shape (bottom surfaces 15a-15c are slant downwardly as they extend from the right hand ends to the left hand ends of the recess 13a-13c. Due to this slanted bottom surfaces, the recess 13a-13c are not symmetric about its

central axis) thereby readily and inexpensively mounting a plurality of different chip arrangements utilizing known suction head (col. 1, lines 40-45 and 55-63).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Janisiewicz/Kent by providing a recess having an asymmetric shape for the purpose of readily and inexpensively mounting a plurality of different chip arrangements utilizing known suction head as taught by Fukai.

Claim 72: Janisiewicz/Kent are relied upon in rejection to claims 30, 44, 48, 53, and 61, as shown above. Kent discloses in Fig. 2 a controller (204) controls a part placement section (200), which comprises a feed source (106), to advance the feed source. However, Janisiewicz/Kent fail to at least one nest that defines an asymmetric recess.

Fukai discloses at least one nest (13a-13c) having an asymmetric recess (bottom surfaces 15a-15c are slant downwardly as they extend from the right hand ends to the left hand ends of the recess 13a-13c. Due to this slanted bottom surfaces, the recess 13a-13c are not symmetric about its central axis) thereby readily and inexpensively mounting a plurality of different chip arrangements utilizing known suction head (col. 1, lines 40-45 and 55-63).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Janisiewicz/Kent by at least one nest having an asymmetric recess for the purpose of readily and inexpensively mounting a plurality of different chip arrangements utilizing known suction head as taught by Fukai.

Note: a recitation of the intended use of the claimed invention (for a component having leads) must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure

is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

7. Claim 62 is rejected under 35 U.S.C. 103(a) as being unpatentable over Janisiewicz et al (US 5,040,291) and Kent (US 5,787,577) as applied to claims 30-32, 34-37, 44, 48-51, 61, 64, 67, and 74-75 above, and further in view of Kou (US 6,027,019).

Janisiewicz/Kent disclose substantially all the claimed limitations as shown above.

Janisiewicz/Kent fail to disclose that the alignment signal output is a warning.

Kou discloses a warning signal is given based on a result of comparison (col. 2, line 10-11) thereby correcting any misalignment.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Janisiewicz/Kent by providing a warning in the event of a misalignment, as taught by Kou, for the purpose of correcting any misalignment.

Response to Arguments

8. Applicant's arguments with respect to claims 30-37, 44, 48-51, 53-54, 57-62, 64, 67, 72, and 74-75 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick K. Chang whose telephone number is (703) 308-4784. The examiner can normally be reached on 5:30 AM to 1:30 PM.

RC
May 17, 2001

5/17/01

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